tin Mensuel," published by Mr. Marc Dechrevens, of the Zi-Ka-Wei observatory:

Of the four typhoons that swept the China sea during the month, two prevailed below the twentieth parallel of latitude and moved from east to west; the remaining two moved from south to north, from the twentieth to the fiftieth parallels. These typhoons appear to originate in the region situated to the east of the Philippine islands, between N. 10° and 20° and E.140° and 150°, but owing to the small number of vessels frequenting that part of the ocean, it is impossible to definitely determine the region where they first develope.

The first typhoon of August (second of the season of 1880) entered the China sea by the channel which separates the islands of Formosa and Luzon, and was between the above-mentioned islands on the 28th of July. It pursued a westerly course, with a moderate and steady movement, and on tne 31st it passed south of Hong-Kong. On August 1st, it crossed the island of Hainan, the gulf of Tonquin on the 2d, and entered the continent on the 3d, in about N. 18°. At Manilla, strong westerly to southwesterly winds prevailed, and at Hong-Kong the winds were northeasterly during the 30th and 31st of July, after which they shifted to east and southeast. At Pakhoi, on the northern coast of the gulf of Tonquin, the winds were northeasterly and moderate during July 31st and August 1st, but on the 2d, they changed to strong easterly, and on the 3d, they were southeasterly, blowing with great violence. At Zi-Ka-Wei, the winds were easterly, with no decided change in barometric pressure. The progressive rate of this typhoon may be estimated at about seven miles (eleven kilometres) per hour.

The second typhoon of August presents the form of a parabolic curve, with its apex to the north of the Yellow sea, and between Cape Shan-tung and Corea. Its progressive velocity, during the first part of its course, and until reaching the twenty-sixth parallel was very slow, being about 6 miles (10 kilometres) per hour, but its rate subsequently increased to about 19 miles (30 kilometres) per hour, between the fortieth and forty-fifth parallels of latitude. The following report of the bark "Laura R. Burnham" indicates the severity of the typhoon: At midnight of the 5th, the vessel was west of the centre, barometer 29.10 (739.0), wind north to northwest and blowing with terrific violence; the vessel lost sails, rudder, and sustained other damage and put into Nagasaki in distress, on the 11th. The ship "Mary Whitridge," which left Shanghai for Nagasaki on July 28th, was probably very near the centre, having reported on the 4th, barometer 28.50 (723.9). This typhoon was accompanied by heavy rains throughout its passage, and these were the only rains of the month at Cape Shan-tung and Newchwang.

The third typhoon (24th to 28th) traversed the entire archipelago of Japan. This disturbance moved more rapidly than the two just described, having in four days, moved from N. 25°, E.125°, to N. 50°, E. 145°, with a steady velocity of about 19 miles (30 kilometres) per hour. This typhoon was very severe throughout Japan, the wind at Tokei reaching a velocity of 38 miles south, on the 25th, and the barometer at that station read 29.41 (747.0) on the same day. The U. S. steamer "Swatara," reported: At noon of the 25th, in N. 37° 19′, E. 141° 30′, barometer 29.79 (756.7) and falling; moderate south by west wind, of force 3. The barometer continued to fall and the wind increased in force until 6 p. m., when it shifted to south; at 9 p. m. the barometer read 29.66 (753.4), wind south by east, increasing to force 7; 10 p. m., barometer 29.62 (752.3), wind south-southeast, force 7 to 8; 11 p. m., barometer 29.58 (751.3), wind southeast by south, moderate gale, force 7 to 8, light rain. At midnight, the barometer read 29.54 (750.3), the wind blowing in heavy squalls from the southeast, force 7 to 9. The wind then backed to southwest, blowing a strong gale (9 to 10), and the barometer continued to fall until 4 a. m. of the 26th, when the lowest barometric reading was 29.44 (747.8). By noon of the 26th, the barometer began to rise and the wind decreased in force.

The fourth typhoon of August (fifth of the season of 1880), followed nearly the same course as that of July 31st, 1879, and is reported to have been, at Pakhoi, the most severe storm that had visited that place during a period of twenty-five years. The sugar-cane crop was greatly damaged and many junks were wrecked. The typhoon moved westward with a steady velocity of 7 miles (11 kilometres) per hour, and passed to the north of Hainan on the 31st. The lowest barometer reported by H. B. M's ship "Magpie," at Pochin Roads, China sea, during the passage of this disturbance, was 28.71 (729.3) on the morning of the 31st, the wind having moderated from northeast, force 12, to north, force 3.

OCEAN ICE.

June 21st to 24th: ship "E. J. Spicer," in N. 48° 50′ to 45° 50′, and W. 48° to 52°, passed a great number of icebergs, some of which were one hundred feet high.

28th: s. s. "Hermod," in N. 43° 50′, W. 50°, observed two very high icebergs.

July 1st: bark "Walborg," in N. 44° 06′, W. 48° 18′, saw three icebergs.

4th and 5th: bark "Marie," in N. 44° 20′, W. 46° 56′, passed seven large icebergs, some of them fully five hundred feet high.

7th: s. s. "Matthew Bedlington," in N. 40°, W. 40° to 49°, passed through twenty large icebergs, with several smaller ones floating amongst them and very dangerous to navigation.

10th: bark "Elida," in N. 47° 48′, W. 50° 45′, passed seven icebergs, some of them very large, being about five hundred feet high.

13th: s. s. "Lord Gough," in N. 43° 31′, W. 51° 32′, passed three large icebergs.

15th: s. s. "Sophie," at New York reports: was surrounded by icebergs for eight days in N. 43° to 42°, and W. 49° 30′, to 50° 30′. Some were one hundred feet high, melting and falling into the sea with a crashing sound. Saw no ice after reaching N. 41°

16th: s. s. "Devon," off eastern edge of Banks, sighted large icebergs.

17th: bark "Johanne," in N. 46° 03′, W. 48° 33′, passed an iceberg.

19th: s. s. "Main," in N. 47° 45′, W. 52° 12′, passed an iceberg. In N. 46° 56′, W. 52° 24′, up to Sable, passed for a distance of 30 miles, numerous large icebergs, and in N. 46° 11′, W. 53° 34′, passed two large icebergs; s. s. "State of Nebraska," at New York reports under date, that she passed from N. 44° 32′, W. 42° 13′, to N. 44° 22′, W. 48° 04′, two large icebergs.

20th: bark "Johanne," in N. 45° 15′, W. 48° 53′, passed an iceberg.

23d: s. s. "Jason," in N. 45° 18′, W. 47° 40′, passed a large iceberg; bark "Johanne," in N. 43° 42′, W. 51° 44′, passed an iceberg.

TEMPERATURE OF THE AIR.

The distribution of mean temperature over the United States and Canada for the month of July, 1882, is exhibited by the dotted isothermal lines on chart ii. The table of mean temperatures at the lower left-hand corner on the chart shows the average temperature which prevailed in each district during the current month, compared with the mean temperature of each district, as determined from observations taken at Signal Service stations during the corresponding month of the past ten years.

During the month of July, the mean temperature has been below the normal in all districts except New England, the northern plateau, and in the middle and south Pacific coast regions, where the following slight dapartures occurred: +0°.4, +1°.1, +1°.0 and +0°.4, respectively. In the upper Mississippi valley, where the greatest departure occurred, the temperature has been 6° below the normal; and in the Ohio valley, Missouri valley, extreme northwest, upper lake region and east Gulf states, the departures have been 5°.1, 4°.9, 4°.6, 4°.2 and

Table of Comparative Maximum Temperatures for the Month of July.

State or Territory.	Maximum for July, 1882, Signal Service.		Highest since Signal Service stations were opened—3 to 11 years.			Highest from any other source.			
	Station	Temp.	Station.	Temp.	Year.	Place.	Temp.	Year.	Length of Record.
		°		°			°		
Alabama	Mobile	96	Montgomery	107	1881	Mount Vernon Arsenal	104	1860?	33 years.
Arizona	Phœnix	114	Yuma	118	1878	Fort Mojave	119	1877	22 "
Arkansas	Fort Smith	100	Little Rock	100	'79 & '81	Washington, near	108	1860	28 "
California	Red Bluff	105	Red Bluff	110	1879	Fort Yuma	119	1877	31 "
Do						Fort Miller	118	1853?	13 "
Colorado	West Las Animas	99	Denver	102	1874	Fort Lyon	108	'68? & '78	22 "
Connecticut	New Haven and New London	90	New Haven	95	1876	New Haven	101	1864?	88 "
Dakota	Fort Sully	100	Fort Sully	109	1877	Fort Sully	114	1871	16 "
Delaware	Delaware Breakwater	88	Delaware Breakwater	91	1880	Fort Delaware	101	1865	45 "
Dist. of Columbia	Washington	95	Washington	102	1879	Washington	103	1838	49 "
Florida	Key West	95	Jacksonville	104	1879	Fort King	103	1833?	10 "
Georgia	Savannah	95	Augusta	105	1878	Forsyth	106	1881	7 "
Do			Savannah	105	1879	McPherson Barracks	105	1878	7 "
Idaho	Fort Lapwai	113	Fort Lapwai	104	1881	Fort Boise	113	1871?	15 "
Do			Boise City	106	1877				
Illinois	Chicago and Springfield	90	Cairo	99	'74 & '81	Chicago	106	1868	39 "
Do			Chicago	99	1874				
Do			Springfield	99	1874				
Indiana	Indianapolis	89	Indianapolis	101	1881	Wabash	104	1876	1 "
Do						Spiceland	100	'64 & '81	15 "
Indian Territory	Fort Supply	101	Fort Gibson	109	1879	Fort Sill	109	1871	10 "
Do						Fort Arbuckle	109	1856	20 "
Iowa	Des Moines	92	Dubuque	101	1874	Fort Madison, near	105	1870	19 "
Do						Brookside	105	1868	5 "
Kansas	Dodge City	101	Dodge City	108	1876	Fort Larned	115	1871	17 "
Kentucky	Louisville	91	Louisville	102	1874	Newport Barracks	98		29 "
Louisiana	Shreveport	100	Shreveport	107	1875	Baton Rouge	102	'77 & '78	57 "
Maine	Portland	94	Portland	97	1876	Brunswick	102	1808	53 "
Do						Fort Preble	101	1881	60 "
Maryland	Baltimore	93	Baltimore	99	'76'79'80	Fort Washington	102	1853?	46 "
Do						Fort McHenry	102	1879	51 "
Massachusetts	Boston	98	Boston	101	1880	Westborough	103	1876	7 "
Do						Fort Warren	100	1872	19 "
Michigan	Port Huron	91	Detroit and Marquette	100	1878	Marquette	103	1862	9 "
Do						Monroe	103	1866	11 "
Minnesota	Saint Paul	92	Saint Paul	99	1874	Fort Ripley	103	1871	16 "
Do						Fort Snelling	100	1838	62 "
Mississippi	Vicksburg	96	Vicksburg	100	'78 & '81	Brookhaven	102	1880	7 "
Do						Columbus	100	1862	10 "
Missouri	Springfield	93	Saint Louis	104	1881	Allenton	109	1868	4 "
Do						Oregon	105	1868	10 "
Do						Saint Louis	103	1834?	38 "
Montana	Cartersville	106	Fort Keogh	109	1881	Fort Shaw	112	1872	13 "
Nebraska	North Platte and Omaha	93	North Platte	107	1877	Fort McPherson	115	1870	15 "
Nevada	Winnemucca	97	Winnemucca	104	1877	Camp Halleck	110	1876	11 "
New Hampshire	Mount Washington	60	Mount Washington	72	1881	Stratford	100	1868	11 "
New Jersey	Little Egg Harbor	99	Sandy Hook	100	1876	Haddonfield	102	1866	7 "
New Mexico	Fort Bayard	115	La Mesilla	107	1880	Fort McRae	116	1873	10 "
Do	La Mesilla	107							
New York	New York City	93	Oswego	100	1878	Fort Columbus	104	1821	60 "
Do						Newburg	105	1849	40 "
Do						Moriches	105	1868	6 "
North Carolina	Life Saving Station, No. 6	97	Wilmington	103	1879	Weldon	107	1879	8 "
Do	Kittyhawk	96				Fort Johnson	104	1831	57 "
Ohio	Cincinnati	90	Cincinnati	103	'79 & '81	Jacksonburg	104	1881	8 "
Do			Columbus	103	1881	Marietta	102	1859	54 "
Oregon	Umatilla	105	Umatilla	107	1880	Fort Dalles	105	1853	15 "
Pennsylvania	Philadelphia	94	Pittsburgh	103	1881	Carlisle Barracks	105	1868	38 "
Rhode Island	Narragansett Pier	89	Newport	92	1878	Fort Adams	102	1869	40 "
South Carolina	Charleston	94	Charleston	104	1879	Charleston	101	1752	105 "
Do						Stateburg	103	1881	1 "
Tennessee	Memphis	93	Chattanooga	101	1879	Castalian Springs	103	1875	3 "
Do			Nashville	101	'74 & '79				
Texas	Eagle Pass	111	Eagle Pass	112	1881	Fort Mason	114	1860	9 "
Do			Laredo	110	1879				
Utah	Salt Lake City	96	Salt Lake City	98	1877	Camp Douglas	103	1871?	20 "
Do						Mount Carmel	112	1877	3 "
Do						Kanab	107	1877	6 "
Vermont			Burlington	96	1878	Randolph	102	1868	5 "
Virginia	Cape Henry and Norfolk	95	Norfolk	102	'76 & '79	Dover Mines, near	104	1879	3 "
Do						Snowville	102	1881	3 "
Do						Fortress Monroe	101	1881	56 "
Washington T'y	Almota	106	Almota	103	1881	Fort Walla Walla	107	'69 & '80	13 "
Do			Dayton	102	1880	Cape Disappointment	104	1865	9 "
West Virginia	Morgantown	84	Morgantown	97	1874	Flemington	98	1881	1 "
Wisconsin	La Crosse and Milwaukee	88	La Crosse	101	1874	Embarrass	104	1866	13 "
Wyoming	Fort Washakie	97	Cheyenne	100	1881	Fort Laramie	107	1876	27 "

4°.2, below the normal, respectively. Along the Atlantic coast, the departures have been less marked, and have ranged from 2°.2 below the normal in the south Atlantic states to 0°.4 above the normal in New England. At the station on the summit of Pike's Peak, the temperature has been 2°.5 below the mean of July.

DEVIATIONS FROM MEAN TEMPERATURE.

Under this heading, departures exhibited by the reports from the regular Signal Service stations are shown in the table of comparative temperatures on the left-hand side of chart ii. The following items of importance, in connection with this subject, are reported by voluntary observers:

Illinois: Riley, mean temperature, 65°.5, or 5°.5 below the average of the past twenty-one years, and 2°.4 below the mean of the coldest month (July, 1861,) for that period. The maximum temperature for the month, 87°, is the lowest July maximum for the past twenty-one years. Swanwick, mean temperature of the month, 75°.7, is 4°.3 below the average July mean.

Indiana: Vevay, mean temperature 73°.9, or 4°.8 below the average of the past seventeen years. The maximum temperature for the month, 88°, is 8°.7 below the mean maximum, and the minimum, 57°, is 6°.9 below the mean minimum for the same period. Logansport, mean temperature 73°.6, or 6° below the average of the past twenty years. The maximum temperature, 92°, is 6°.8 below the mean maximum, and the minimum, 58°, is 0°.5 above the average minimum for the same period. The highest maximum temperature, 106°, occurred in 1874; lowest minimum, 46°, occurred in 1863.

Iowa: Clinton, mean temperature 68°.7, or 3°.4 below the average.

Kansas: Manhattan, mean temperature 72°.69, or 6°.38 below

the average July mean for a period of twenty-two years. Wellington, mean temperature 73°.05, or 6°.3 below the average of the past three years. The highest July mean for that period, 81°.2, occurred in 1879; the lowest is that of the present year. The minimum temperature of the month, 51°, is the lowest that has occurred during the past three years. Yates Centre, mean temperature, 73°.6, is 4°.4 below the average of the past two years.

Maine: Gardiner, mean temperature 67°.22, or 1°.6 below the average of the past forty-six years.

Maryland: Fallston, mean temperature 73°.62, or 2°.21 below the July mean of the eight years from 1872 to 1879, inclusive. During that period the highest monthly mean, 78°.73, occurred in 1872; the lowest, 74°.08, occurred in 1875.

Missouri: Saint Louis, "Missouri Weather Service" reports mean temperature below the average of the past forty-five years.

New York: North Volney, mean temperature 68°.6, or 1°.54 below the average of the past fourteen years. During that period, the highest July mean, 76°.16, occurred in 1868; the lowest, 66°.13, occurred in 1875.

Vermont: Woodstock, mean temperature 68°.52, or 0°.38 above the average of the past fifteen years. During that period the highest July mean, 71°.3, occurred in 1878, and the lowest, 64°.3, occurred in 1869; the highest maximum, 98°, occurred July 10th, 1881, and the lowest minimum, 40°, occurred July 6th, 1869.

Virginia: Wytheville, mean temperature, 67°.91, is the lowest July mean on a record covering a period of eighteen years. The maximum temperature of the month, 87°, is 10° below that of July, 1881, and is 4°.5 below the mean maximum temperature.

West Virginia: Helvetia, mean temperature, 66°.86, is 3°.85 below the average of the past six years, and is the lowest July mean for that period.

Wisconsin: Beloit, mean temperature, 68°.3, is the lowest July mean that has occurred since 1865.

RANGES OF TEMPERATURE AT SIGNAL SERVICE STATIONS.

Monthly ranges of temperature during the month of July varied at stations east of the Rocky mountains from 20° to 70°; and at stations west of that region from 21° to 74°. The smallest ranges are: Galveston, 20°; Indianola and San Francisco, 21°; Key West, New Orleans, Punta Rassa and San Diego, 22°; Cedar Keys, Jacksonville and Fort Macon, 23°; Cape May, Hatteras and Port Eads, 24°; Fredericksburg, Texas, 26°; Charleston and Wilmington, 27°; Savannah and Smithville, 28°; Delaware Breakwater, Pensacola, Pike's Peak, Morgantown, Starkville, and Life Saving Station, No. 6, North Carolina, 29°; Block Island, Rhode Island, 30°. The largest are: Fort Lapwai, Idaho, 74°; Cartersville, Montana, 70°; Deer Lodge, Montana, 67°; Colfax, Washington territory and Missoula, Montana, 64°; Fort Washakie, Wyoming, 63°; Terry's Landing, Montana, 62°; Grierson Springs, Texas, and Winnemucca, 61°; Fort Shaw, Montana, 59°; Pomeroy, Washington territory, 58°; Fort Keogh, Montana, and Lewiston, Idaho, 57°; Almota and Dayton, Washington territory, and Eagle Rock, Idaho, 56°; Umatilla, Oregon, and Forts Benton and Custer, Montana, 55°. The greatest daily ranges varied in the different districts as follows:

New England: From 15° on the summit of Mount Washington on the 16th, to 30° at Boston on the 27th.

Middle Atlantic states: From 15° at Cape May on the 17th, to 32° at Williamsport on the 23d.

South Atlantic states: From 17° at Fort Macon on the 6th and 7th, to 24° at Augusta on the 7th.

Florida peninsula: From 17° at Cedar Keys on the 16th, and at Key West on the 21st, to 19° at Punta Rassa on the 18th.

East Gulf states: From 15° at New Orleans on the 27th, to 27° at Montgomery on the 16th.

West Gulf states: From 16° at Galveston on the 18th, and

Table of Maximum and Minimum Temperatures for July, 1882.

State or Territory.	Signal Service.			U. S. Army Post Surgeons or Voluntary Observers.		
	Station.	Max.	Min.	Station.	Max.	Min.
		°	°		°	°
Alabama	Mobile	96		Opelika	102	
Do	Montgomery		61	Birmingham		45
Arizona	Phœnix	114		Texas Hill	118	
Do	Fort Apache		50			
Arkansas	Fort Smith	100	61	Prescott	100	
Do	Little Rock		61	Bainkley		39
California	Red Bluff	105		Indio	117	
Do	Los Angeles		52	Cisco		44
Colorado	West Las Animas	99		Fort Lyon	101	
Do	Denver		49	Fort Garland		36
Do	Pike's Peak		26			
Connecticut	New Haven	90	54	Southington	96	55
Do	New London	90				
Dakota	Fort Sully	100		Fort Buford	101	38
Do	Fort Meade		40			
Delaware	Del. Breakwater	88	59			
District of Columbia	Washington	95	58			
Florida	Key West	95		Live Oak	98	
Do	Pensacola		64	Fort Gaines		58
Georgia	Savannah	95		Jesup	101	
Do	Atlanta		58	Madison		50
Idaho	Fort Lapwai	113	39			
Do	Cœur d'Alene		39			
Illinois	Chicago and Springfield	90		Peoria	97	
Do	Champaign		52	Riley		48
Indiana	Indianapolis	89	53	Fort Wayne	94	
Do				Lafayette		50
Indian Territory	Fort Supply	101	56			
Iowa	Des Moines	92		Clinton and Des Moines	94	
Do	Dubuque		50			
Do				Nora Springs		46
Kansas	Dodge City	101		Creswell, Fort Riley and Wellington	101	
Do	Leavenworth		54			
Do				Manhattan		49
Kentucky	Louisville	91	57			
Louisiana	Shreveport	100	64	New Iberia	117?	
Do				Franklin	101	
Do				Alexandiria and Amite City		57
Maine	Portland	94				
Do	Eastport		45			
Maryland	Baltimore	93	59	Fallston	95	
Do				Woodstock		54
Massachusetts	Boston	98	52	Somerset	102	
Do	Thatcher's Island		52	Heath		48
Michigan	Port Huron	91		Harrisville and Northport	92	
Do	Alpena and Marquette		45	Reed City	92	39
Minnesota	St. Paul	92				
Do	St. Vincent		42			
Mississippi	Vicksburg	96		Meridian	104	
Do	Starkville		62	Lake		50
Missouri	Springfield	98	53	Sedalia	100	
Do				Pierce City		45
Montana	Cartersville	106				
Do	Deer Lodge and New Chicago		33			
Nebraska	North Platte	93	45	Fort Niobrara	97	46
Do	Omaha	93				
Nevada	Winnemucca	97	36	Beowawe	105	
Do				Halleck		38
New Hampshire	Mt. Washington	60	29	New Market	94	
Do				Grafton		48
New Jersey	Little Egg Harbor	99	51			
New Mexico	Fort Bayard	115		Fort Union		40
Do	La Mesilla	107				
Do	Santa Fé		50			
New York	New York City	93		Fort Hamilton	97	
Do	Rochester		50	Johnstown		45
North Carolina	Life-Saving Station No. 6	97		Wadesborough	105	
Do	Kittyhawk	96		Murphy		54
Do	Charlotte		60			
Ohio	Cincinnati	90		Ruggles	92	
Do	Toledo		52	Westerville		48
Oregon	Umatilla	105				
Do	Roseburg		42			
Pennsylvania	Philadelphia	94		Fallsington	95	
Do	Erie, Pittsburgh, and Williamsport		54	Dyberry		44
Rhode Island	Narragansett Pier	89	53	Fort Adams	90	51
South Carolina	Charleston	94	67	Chester	100	
Do				Georges		49
Tennessee	Memphis	93		Withe	96	
Do	Knoxville		53	Erin		50
Texas	Eagle Pass	111				
Do	Grierson Springs		58			
Utah	Salt Lake City	96	46	Promontory	110	
Do				Coalville		38
Vermont				Charlotte		94
Do				Woodstock		46
Virginia	Cape Henry and Norfolk	95		Accotink	98	
Do	Fort Myer		57	Wytheville		47
Washington Ter.	Alamota	105				
Do	Colfax		38			
West Virginia	Morgantown	84	54	Helvetia	86	47
Wisconsin	La Crosse and Milwaukee	88				
Do	Madison		50			
Wyoming	Fort Washakie	97	34	Fort Bridger		25

at Port Eads on the 31st, to 31° at San Antonio on the 31st and 32° at Fort Smith on the 23d and 24th.

Rio Grande valley: From 32° at Uvalde on the 4th and 6th, to 33° at Eagle Pass on the 7th.

Ohio valley and Tennessee: From 21° at Cincinnati on the 16th and 23d, to 32° at Pittsburgh on the 23d.

Lower lake region: From 24° at Detroit on the 6th and 22d, at Sandusky on the 24th, to 32° at Oswego on the 16th.

Upper lake region: From 20° at Chicago on the 1st, to 29° at Alpena on the 23d and 25th, and at Marquette on the 9th.

Extreme northwest: From 30° at Bismarck on the 2d and at Fort Stevenson on the 4th, 23d and 24th, to 33° at Moorhead on the 21st.

Upper Mississippi valley: From 21° at La Crosse on the 10th, to 31° at Dubuque on the 22d.

Missouri valley: From 27° at Omaha on the 8th, to 36° at Fort Bennett on the 27th.

Northern slope: From 32° at Helena on the 13th and 26th, and at North Platte on the 18th, to 48° at Fort Shaw on the 27th.

Middle slope: From 21° on the summit of Pike's Peak on the 10th and 27th, to 35° at Dodge City on the 10th.

Southern slope: From 26° at Henrietta on the 5th, to 38° at Coleman City on the 6th, and at Stockton on the 4th.

Southern plateau: From 28° at Fort Grant on the 18th, to 46° at La Mesilla on the 12th.

Middle plateau: From 34° at Pioche on the 10th, to 48° at Winnemucca on the 9th.

Northern plateau: From 39° at Lewiston on the 12th, to 51° at Missoula on the 26th and 30th.

North Pacific coast region: From 35° at Portland on the 15th, to 45° at Olympia on the 12th.

Middle Pacific coast region: From 19° at San Francisco on the 9th, to 36° at Sacramento on the 5th, and 38° at Red Bluff on the 13th.

South Pacific coast region: From 15° at San Diego on the 4th, to 34° at Yuma on the 10th, and 39° at Los Angelos on the 4th.

FROSTS.

Stations reporting the occurrence of frost are as follows:

Summit of Mount Washington, 2d and 3d.

New Chicago, Montana, 26th.

Cheyenne, Wyoming, 9th: heavy frost. 13th: Ranchmen report the occurrence of a heavy frost at Horse creek, thirty-five miles distant. The temperature at Cheyenne on this date was lower than on the 9th, when a heavy frost occurred.

Fort Washakie, Wyoming, 9th: Killing frost; potatoes very much injured.

Deer Lodge, Montana, 26th: Light frost.

Fort Garland, Colorado, 10th: Severe frost, doing much damage to potatoes.

Pagosa Springs, Colorado, 17th: Heavy frost; 10th, 11th, 16th, 31st, light frosts.

Fort Ellis, Montano, 8th: Heavy frost; 9th, 25th, light frosts.

Carson City, Nevada, 9th.

Neillsville, Wisconsin, 4th, 14th: Light frosts.

Summit of Pike's Peak, 1st, 3d, 4th, 25th: Light frosts; 16th, 22d, heavy frosts.

ICE.

Cheyenne, Wyoming, 9th: Ice formed in many places in this city and vicinity.

PRECIPITATION.

The distribution of rainfall in the United States and Canada during the month of July, as determined from observations taken at more than six hundred stations, is exhibited on chart number iii.

The table in the lower left-hand corner of the chart shows the average rainfall of July in each district, as determined from Signal Service observations during the past ten years, and the actual rainfall during the current month, with excess or deficiency, as compared with the average.

There has been an excess of rainfall in the south Atlantic and Gulf states of from 1.41 to 1.95 inches, and in the extreme northwest, where it amounts to 1.56 inches. The largest excess of rainfall, 3.04 inches, has been reported from the southern slope, where unusually heavy monthly rainfalls for that region have occurred.

In the Ohio valley, lower lake region, the upper Mississippi and Missouri valleys deficiencies ranging from 1.11 to 1.74 inches are reported. Deficiencies of 0.98 inch and 0.63 inch occurred in New England and the middle Atlantic states, respectively. At the station on the summit of Mount Washington there was an excess of 2.86 inches, and on the summit of Pike's Peak a deficiency of 3.11 inches was reported.

DEVIATIONS FROM AVERAGE PRECIPITATIONS.

Under this heading, departures exhibited by the reports from the regular Signal Service stations are shown in the table of comparative monthly rainfalls (as published in the lower left-hand corner of chart iii). The following items of importance, in connection with this subject, are reported by voluntary observers:

Illinois: Riley, monthly rainfall, 3.63 inches, or 0.47 inch below the July average of the past twenty-one years.

Indiana: Logansport, monthly rainfall, 3.62 inches, or 0.83 inch less than the average of the past twenty years. During that period, the largest July rainfall, 13.10 inches, occurred in 1869; the smallest, 0.96 inch, occurred in 1863.

Kansas: Manhattan, monthly rainfall, 7.73, or 3.02 inches above the July average of the past twenty-two years. Wellington, monthly rainfall, 5.28, or 2.15 inches above the July average of the past three years. The total amount of rainfall for the annual rain period (April to July, inclusive,) of 1882 is 19.20, or 4.80 inches more than the average of the past three years. The total rainfall for the seven months ending July 31st is, 20.29, or 5.47 inches more than the average of the same period for the three preceding years.

Maine: Gardiner, monthly rainfall, 2.60 inches, or 0.76 inch below the average of the past forty-six years.

Maryland: Fallston, monthly rainfall, 3.04 inches, or 0.65 inch below the average of the past eleven years. During that period the largest July rainfall, 5.54 inches, occurred in 1873; the smallest, 1.42 inches, occurred in 1881.

Massachusetts: Worcester, monthly rainfall, 1.32, or 2.45 inches below the average. The total amount of rainfall for the seven months ending July 31st is 25.73 inches, or 0.30 inch less than the average of the same period in former years.

Missouri: Saint Louis, "Missouri Weather Service" reports monthly rainfall below the average of the past forty-five years.

New Hampshire: Antrim, monthly rainfall, 2.60, or 2.17 inches below the July average of the past ten years. Contoocookville, monthly rainfall, 1.65, or 2.35 inches below the averge of the past twelve years. Grafton, monthly rainfall, 2.54, or 1.90 inches less than the average of the past three years.

New York: Troy, monthly rainfall, 9.62 inches, is more than 3.00 inches above the average of July for the past eight years. North Volney, monthly rainfall, 1.00 inch, or 2.96 inches below the average of the past ten years, and is the smallest July rainfall that has occurred during that period; the largest, 7.80 inches, fell in 1874.

Pennsylvania: Dyberry, monthly rainfall, 7.24 inches, is the largest that has occurred since July, 1871, when the amount was 7.68 inches.

Virginia: Wytheville, monthly rainfall, 4.63 inches, or 0.33 inch more than the average of a period of seventeen years. The precipitation for the seven months ending July 31st is 6.76 inches in excess of the average.

The following table shows the least and greatest numbers of rainy and cloudy days, and the percentages of mean relative humidity as reported from the various districts during the month: